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Next-generation networks for Ukraine's next generation

In Ukraine, demand for telecommunications services is far from satisfied. There is a long waiting list for telephone installation, while old analog equipment and low accessibility of broadband connections impede development of this sector and contribute to the gap between the quality of life in Ukraine and in developed countries. Existing network architecture is too expensive to allow for rapid network expansion. In turn, rapid network expansion is too expensive, and the lack of capital both in Ukraine generally and in the telecom industry worldwide adds to the problem. Therefore, technological developments that reduce the price of telecommunication equipment could significantly increase the speed of building up the access network in Ukraine

Next-generation multi-service networks (NGN) are cheaper to install and to operate, and they enable new profitable services, claim equipment vendors. A survey commissioned by Ericsson-Ukraine and conducted by ICPS experts corroborated the assumption that (1) installing next-generation access equipment could bring more returns on investment to the incumbent operator in Ukraine in comparison to the circuit-switched digital equipment; and (2) growing demand for broadband connections could make investment in low-cost Ethernet DSL access equipment profitable.

What are next-generation networks?

For decades, telecommunication companies have traditionally built separate platforms for the delivery of specific high-quality services. Each platform was optimised for the delivery of its own particular service set. On the positive side was the superb quality of each given service, while the negative meant expensive network deployment and high operating costs. For society, it means that the idea of universal telecommunications service is very costly and applicable only in high-income countries. On the other side, those who have access to the services (residential customers in big cities and big businesses) have the highest quality.

The concept of next-generation networks is to move away from multi-platform approach, towards simple and cost-effective networks that are designed to deliver all the services in the operator's portfolio. The technological challenge is not to sacrifice service quality to cost reduction and economising—to chose the optimal speed of migration to maximise corporate profits and social welfare.

Technologically, migration from traditional networks to new-generation networks is a migration from the separate circuit-switched and datacomm networks to IP-based multi-service networks. At output would be all-packet networks with guaranteed quality of service (QoS) levels, as required by the different services. These networks will be more manageable and, at the same time, control over the services will be shifted to customers, increasing their satisfaction.

Should Ukraine build a next-generation network?

The advantages of a specific platform for the delivery of certain services are the following:

- The best equipment for the service is chosen;
- The network is designed specifically for the delivery of that service;
- Staff are specially trained in the delivery of that service.

However, a number of problems emerges in this case:

- Massive and expensive workforce—each service requires its own customer care, design, operating and sales team;
- Multiple racks of equipment consume too much space;
- Design teams tend to develop their own platforms, without concern for operator strategy as a whole;
- Service sales teams use their power to continue their service.

Technological difficulties are usually cited as the key impediment to the development of next-generation networks. At the time when transition to next-generation networks only began, many of the key areas of network technology were still in development. By now key vendors have already developed solutions that guarantee quality of service necessary for all NGN services. There are no insurmountable technical barriers to the development of next-generation networks. However, new solutions require careful testing and tuning.

A variety of other factors will also moderate the uptake of next-generation networks to some extent. These include:

- Service complexity—some important next-generation services are quite complex offerings, the benefits of which take some effort to communicate to customers;
- Customer expectations of low-cost “Internet” services—there is a strong association among customers between IP

services and cheap, non-critical applications, which will take some time to change;

• Conflicts of interest in service-provider organisations during the period of transition—raising issues such as revenue cannibalisation, divisional rivalries, and sales force motivation.

Nevertheless, there are four main reasons for operators to build a next-generation network in Ukraine:

• They make building the network easier;

• They reduce operating costs;

• They improve operators' ability to generate service revenues;

• They help operators strengthen their relationship with customers.

Incumbents in transition to NGN

Fixed network incumbent operators now face major problems in maintaining their profit margins:

·• Incumbents are slowly losing direct-connect customers to rivals;

• Voice traffic is moving to mobile networks;

• There is the prospect of operating with higher-unit costs than rivals, which can use next-generation networks to overcome the incumbent's economy-of-scale advantages in all network components except the access network.

Despite these difficulties, the fixed network incumbent in Ukraine remains in a strong competitive position. It has a large, and often very loyal, customer base, considerable expertise in running reliable large-scale networks, ubiquity, and a strong brand. But if it is to exploit these assets and reverse its declining profits, it needs to start investing in a next-generation network now. This will enable it to:

• Remain the lowest-cost supplier of fixed network services;

• Neutralise the advantage of next-generation network-based rivals in having 'future proofed' IP networks;

• Boost flagging revenues with the value-added service revenues that next-generation networks can deliver.

Incumbents face three major barriers in moving to a next-generation network:

• Any senior staff have spent their whole careers working with circuit-switched networks. They feel comfortable working in such an environment and may not recognise the need to change to a next-generation network early enough;

• Incumbents often see the choice of network technology as a low-level tactical decision, rather than a strategic board-level issue;

• The migration process from a circuit-switched to a next-generation network creates major internal conflicts. It inevitably leads to revenue and profit substitution, which line-of-business managers in the old circuit-switched divisions will resist. Managing these internal conflicts is a difficult task.

Incumbent operators have built large and complicated networks with a great number of separate platforms. Unlike new operators, which have to build new networks and can choose multi-service solutions, incumbents have to analyse the costs and benefits of changing their legacy networks to new-generation networks. Migration speed and optimal solution are crucial to the success of such a switch.

For the incumbent operator, migration to NGN leads in the mid-term and long-term to enormous operating cost savings and new opportunities, resulting from the increased availability of value-added services and higher network capacity. In the short term, however, building multi-service networks requires large capital investments. To balance these outcomes and define the speed of migration, operators should estimate demand for the new non-voice services.

Impact of NGN on society

Technical (convergence of voice and data networks, optimisation of networks) and economic arguments (improved acquisition and operating costs, with a quick return on investment) usually take precedence over the marketing argument of moving to new multimedia services. Besides possible marketing gains for the operator, next-generation networks will ultimately benefit society in general. NGN can affect quality of life in the following ways:

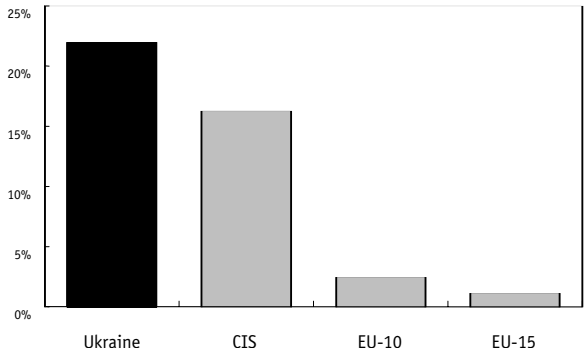
• Broadband access at a reasonable price allows work from home, more entertainment and learning opportunities, etc;

• Cheaper connection to the telecommunications network helps in ensuring universal access, both to the telephone service and to the Internet.

"*We are in the early days of broadband, but it has the potential to revolutionise many aspects of our lives. It has the potential to increase productivity, enhance competitiveness, and enable new markets to be reached. It could radically improve public services. And it can help rural and remote economies; geographical location will no longer be a restriction to competing with urban rivals,*" said Tony Blair, British Prime Minister, in November 2001.■

Inquire: Waiting list for fixed-line installation across various countries

% of outstanding applications by year-end versus number of fixed phone lines, 2001



Source: ITU, CIS Regional Communication Commonwealth, data missing for Belgium, Ireland, Portugal, and Spain.

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